In the Claims

1. (currently amended) An electrochemical sensor, comprising:

a substrate having a surface;

a first electrode deposited on said surface;

a second electrode spaced apart from said first electrode and deposited on said surface for detecting a gas;

an electrolytic material ~~electrolyte~~ in electrical contact with said first electrode and said second electrode for carrying a flow of current; and

said second electrode having a porosity of less than 5%, a pore size less than .12 micrometer ~~micrometers~~ at said pore size's greatest measurement, and a thickness less than 1 micrometer for controlling flooding.

2. (original) The electrochemical sensor according to claim 1, wherein said porosity is less than 2%.

3. (currently amended) The electrochemical sensor according to claim 1, wherein said pore size is less than .05 micrometer ~~micrometers~~ at said pore size's greatest measurement.

4. (currently amended) The electrochemical sensor according to claim 1, wherein said thickness is less than .2 micrometer ~~micrometers~~ for deterring flooding.

5. (original) The electrochemical sensor according to claim 1, wherein said porosity is less than 1%.

6. (currently amended) The electrochemical sensor according to claim 1, wherein said pore size is less than .01 micrometer ~~micrometers~~ at said pore size's greatest measurement.

7. (currently amended) The electrochemical sensor according to claim 1, wherein said thickness is less than .1 micrometer ~~micrometers~~ for deterring flooding.

8. (original) The electrochemical sensor according to claim 1, wherein said second electrode has negligible porosity.

9. (original) The electrochemical sensor according to claim 1, wherein said second electrode is nonporous.

10. (original) The electrochemical sensor according to claim 1, wherein said first electrode is sputter coated.

11. (original) The electrochemical sensor according to claim 1, wherein said first electrode is vapor deposited.

12. (original) The electrochemical sensor according to claim 1, wherein said second electrode is sputter coated.

13. (original) The electrochemical sensor according to claim 1, wherein said second electrode is vapor deposited.

14. (original) The electrochemical sensor according to claim 1, further including an acidic solution for hydrating said electrolyte.

15. (original) The electrochemical sensor according to claim 1, further including a reservoir for containing a solution to hydrate said electrolyte.

16. (currently amended) The electrochemical sensor according to claim 1, wherein each pore of said second electrode ~~substrate has a pore~~ is less than .12 micrometer ~~micrometers~~ at its greatest measurement.

17. (currently amended) The electrochemical sensor according to claim 1, wherein said substrate has a pore less than .05 micrometer ~~micrometers~~ at its greatest measurement.

18. (currently amended) The electrochemical sensor according to claim 1, wherein said substrate has a pore less than .01 micrometer ~~micrometers~~ at its greatest measurement.

19. (original) The electrochemical sensor according to claim 1, wherein said surface of said substrate has negligible porosity.

20. (original) The electrochemical sensor according to claim 1, wherein said surface of said substrate is generally flat.

21. (original) The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 5%.

22. (original) The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 2%

23. (original) The electrochemical sensor according to claim 1, wherein said surface of said substrate has a porosity of less than 1%.

24. (currently amended) The electrochemical sensor according to claim 1, wherein said electrolytic material includes ~~An electrochemical sensor operational below 0°C, comprising:~~

~~a substrate having a surface;~~

~~a first electrode deposited on said;~~

~~a second electrode spaced apart from said first electrode and deposited on said surface for detecting a gas;~~

~~an electrolyte in electrical contact with said first electrode and said second electrode for carrying a flow of current; and~~

an acidic solution for hydrating said electrolyte.

25. (original) The electrochemical sensor according to claim24, wherein said acidic solution is 30% acidic.

26. (original) The electrochemical sensor according to claim24, wherein said acidic solution is 50% acidic.